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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,999	03/08/2001	Sung Bae Jun	P. 194	6665

34610 7590 04/20/2005

FLESHNER & KIM, LLP
P.O. BOX 221200
CHANTILLY, VA 20153

EXAMINER	
BONSHOCK, DENNIS G	
ART UNIT	**PAPER NUMBER**
2173	

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/800,999	JUN ET AL.	
	Examiner	Art Unit	
	Dennis G. Bonshock	2173	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) *5-17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 18-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. It is hereby acknowledged that the following papers have been received and placed on record in the file: Amendment as received on 2-01-05.

2. Claims 1-44, have been examined.

Status of claims:

3. Claims 1-4, 18, 20-27, 30-39, and 42-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Hirai et al., Patent # 6,526,215, hereinafter Hirai.

4. Claims 28 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Ratakonda, Patent # 5,956,026.

5. Claims 19, 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai and Ratakonda.

6. Claims 5-17 have been canceled by the applicant.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-4, 18, 20-27, 30-39, and 42-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Hirai et al., Patent # 6,526,215, hereinafter Hirai.

9. With regard to claim 1, which teaches a method of generating key frames comprising the steps of: receiving a video stream and dividing it into a plurality of sections each section including a plurality of frames, Hirai teaches, in column 4, line 45-64 and column 2, lines 43-53, an apparatus for receiving moving picture data, dividing it into scenes, further dividing it up into cuts. With regard to claim 1, further teaching selecting a key region from each of the plurality of sections, and combining the selected key region from each of the plurality of sections to form a synthetic key frame, each selected one of the key frame and the key region corresponding to a portion of a frame smaller than the total frame size, Hirai teaches, in column 4, lines 52-55, column 2, lines 42-60 and column 10, lines 40-45, the extracting of still images (M-icons) representing each of the scenes an cuts still images, these still images being representatives (key frames) of these subdivisions. Hirai further teaches, in column 15, lines 11-47, the creation of a M-icon by extracting information from an image and creating the M-icon based on an abstract of the obtained detected information. It is further clearly shown that if a video sequence is divided into parts that the parts are smaller than the total. Figure 1, further shows the hierarchical structure where the levels of M-icons are depicted each level going down representing a finer level of the video space.

10. With regard to claim 2, which teaches the dividing step including receiving video form a second source, Hirai teaches, in column 3, line 8 and in figure 5, receiving input from sources such as a movie, and a still image.

11. With regard to claim 3, which teaches the selecting step of including a key region output from a second source, Hirai teaches, in column 3, line 8 and in figure 5, receiving input from sources such as a movie, and a still image.

12. With regard to claim 4, which teaches that a section is a unit of a segment, Hirai teaches, in column 4 line 45, that a scene (section) comprises a plurality of cuts (segments).

13. With regard to claim 18, which teaches a hierarchical video summary method comprising means of, dividing a video stream into a plurality of sections where each section includes a plurality of frames, Hirai teaches, in column 4, line 45-64 and column 2, lines 43-53, an apparatus for receiving moving picture data, dividing it into scenes, further dividing it up into cuts. With regard to claim 18, further teaching synthesizing a key region of each section into one image, to generate a synthetic key frame, wherein each key region corresponds to a portion of a frame smaller than the total frame size, Hirai teaches, in column 4, lines 52-55, column 2, lines 42-60 and column 10, lines 40-45, the extracting of still images (M-icons) representing each of the scenes an cuts still images, these still images being representatives (key frames) of these subdivisions. Hirai further teaches, in column 15, lines 11-47, the creation of a M-icon by extracting information from an image and creating the M-icon based on an abstract of the obtained detected information. It is further clearly shown that if a video sequence is divided into parts that the parts are smaller than the total. With regard to claim 18, further teaching assigning the synthetic key frames to a key image locator, a hierarchical summary list for describing lower summary structures, and structural information, Hirai further

teaches, in column 11, lines 9-15, information being contained in the elements of a hierarchical structure giving address information and video structural information.

14. With regard to claim 20, which teaches that each hierarchical summary structure is represented by an image representative of a specific segment, Hirai teaches, in column 16, line 1 and in figure 1, how in the hierarchy each M-icon (key frame) has its own information zone.

15. With regard to claim 21, which teaches that each component of the lower hierarchical summary list uses a hierarchical/recursive summary structure as a lower hierarchical summary structure, Hirai teaches, in column 9, line 7 and in figure 1, how the hierarchy is organized from the top level story to the next level scenes to the next level of cuts where a cut is a subset of a scene, and each of these M-icons (key frames) has a summary element.

16. With regard to claim 22, which teaches that the hierarchical summary structure has summary level information, Hirai teaches, in column 10, lines 56-67, that each icon is given a layer level value (1, 2, . . . from the bottom layer).

17. With regard to claim 23, which teaches the hierarchical summary structure including a fidelity value, Hirai teaches, in column 5, line 6, and a level of degrees of abstraction as associated with frame images.

18. With regard to claim 24, which teaches a method for providing a video browsing interface comprising: dividing a video stream into a plurality of sections, and synthesizing a key region representing content of each section into one image, to generate a synthetic key frame, wherein each key region represents important

information regarding the respective frame, Hirai teaches, in column 4, line 45-64 and column 2, lines 43-53, an apparatus for receiving moving picture data, dividing it into scenes, further dividing it up into cuts. Hirai teaches, in column 4, lines 52-55, column 2, lines 42-60 and column 10, lines 40-45, the extracting of still images (M-icons) representing each of the scenes an cuts still images, these still images being representatives (key frames) of these subdivisions. Hirai further teaches, in column 15, lines 11-47, the creation of a M-icon by extracting information from an image and creating the M-icon based on an abstract of the obtained detected information. With regard to claim 24, further teaching providing a user interface to a predetermined display to browse a video related to the generated synthetic key frame, Hirai also teaches in column 4, line 60, a means for displaying said hierarchical structure and related information to the user.

19. With regard to claim 25, which teaches the user interface providing the synthetic key frame in the form of view, Hirai teaches in figure 1, a visual representation of the M-icons (key frames).

20. With regard to claim 26, which teaches key frames being arranged in a time sequence, and the key frames arranged in a tree shape, Hirai teaches, in column 9, lines 35-51 and in conjunction with figures 8 and 10, how all of the M-icons are arranged in the order in which they occurred in the inputted moving picture, and that they are displayed in a hierarchical tree structure.

21. With regard to claim 27, which teaches key frames assigned to each node in a TOC form, Hirai teaches, in column 9, lines 25-34 and in conjunction with figures 8 and

10, managing information in an organized form, and then displays a TOC (figure for the hierarchy in figure 10.

22. With regard to claims 30, 32, 34, 36, and 38, which teach the synthetic key frame including a selected key region from each of the plurality of sections, Hirai teaches, in column 4, lines 45-64, a group of frames combined into a representative frame.

23. With regard to claims 31, 33, 35, 37, and 39, which teach each of the plurality of sections comprising a video frame, and the selected key region comprises a portion of the video frame, Hirai teaches, in column 4, lines 45-64, a group of frames (video sequence or clip) combined into a representative frame and in column 3, lines 1-4, the association between the pictures in the hierarchal structure and their associated moving picture sequences.

24. With regard to claim 42, which teaches a hierarchical summary information structure to be used for summarizing a source multimedia content comprising: a plurality of hierarchical summary element information structures, Hirai teaches, in column 4, line 45-64 and column 2, lines 43-53, an apparatus for receiving moving picture data, dividing it into scenes, further dividing it up into cuts. Figure 1, further shows the hierarchical structure where the levels of M-icons are depicted each level going down representing a finer level of the video space. With regard to claims 42, further teaching the hierarchical summary element information structure including: a key image locator, Hirai teaches, in column 4, lines 52-55, a selecting means for extracting a still image representing each of the scenes or cuts. Hirai further teaches, in column 11, lines 9-15, information being contained in the elements of a hierarchical structure giving address

information and video structural information. With regard to claims 42, further teaching the hierarchical summary element information structure including: a list of sub hierarchical summary element information structures, With regard to claim 42, further teaching synthesizing a key region of each section into one image, to generate a synthetic key frame, wherein each key region corresponds to a portion of a frame smaller than the total frame size, Hirai teaches, in column 4, lines 52-55, column 2, lines 42-60 and column 10, lines 40-45, the extracting of still images (M-icons) representing each of the scenes an cuts still images, these still images being representatives (key frames) of these subdivisions. With regard to claims 42, further teaching the hierarchical summary element information structure including: a summary level, Hirai teaches, in column 10, lines 56-67, that each icon is given a layer level value (1, 2, . . . from the bottom layer). With regard to claims 42, further teaching the hierarchical summary element information structure including: a fidelity indicating how well the hierarchical summary element information is represented by a hierarchical summary element information in a higher level, Hirai teaches, in column 5, line 6, and a level of degrees of abstraction as associated with frame images.

25. With regard to claim 43, which teaches the key image locator including a synthetic key frame locator, Hirai teaches, in column 4, lines 52-55, a selecting means for extracting a still image (M-icon) representing each of the scenes or cuts. Hirai furher teaches, in column 10, lines 40-45, the creation of a new M-icon from two existing M-icons (showing that an M-icon can be synthetic).

26. With regard to claim 44, which teaches the synthetic key frame being an image that is not in the source multimedia content, Hirai teaches, in column 10, lines 40-45, the creation of a new M-icon from two existing M-icons.

27. Claims 28 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Ratakonda, Patent # 5,956,026.

28. With regard to claim 28, which teaches dividing video into a plurality of sections where each section includes a plurality of frames, and synthesizing a key region representing content of each section into one image, to generate a synthetic key frame, each selected key region corresponding to a portion of a frame smaller than the total frame size, Ratakonda teaches in column 2, lines 13-27, column 4, lines 35-63, and in column 9, lines 40-43, generating a summary of a video based on key frames by detecting shot boundaries to determine regions, and locating representative shots of the region, where the representative shots (key frames) can be clusters of other shots. Figure 5, further shows the hierarchical structure where the levels of key frames are depicted each level going down representing a finer level of the video space. With regard to claim 28, further teaching providing a user interface to a predetermined display to browse a video related to the generated synthetic key frame, Ratakonda teaches, in column 13, line 35, providing a user interface. With regard to claim 28, further teaching selecting the synthetic key frame according to an input by a user, and reproducing a segment represented by the selected synthetic key frame, Ratakonda teaches, in column 5, lines 56-63, clicking on a particular frame and being able to display a normal playback of a video sequence.

29. With regard to claim 29, which teaches a reproducing step that reproduces a segment related with constituent elements of the contents of the key frame, Ratakonda teaches in column 5, lines 56-63, clicking on a particular frame and being able to display a normal playback of a video sequence.

Claim Rejections - 35 USC § 103

30. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

31. Claims 19, 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai and Ratakonda. Hirai teaches a method of generating representative still images from a video sequence, a locating means comprising: a means of calculating a fidelity value (see column 5, line 6), a annotation (see column 11, lines 9-15), a list of related segments (see column 11, lines 9-15), and information on arrangement (see column 11, lines 9-15), but doesn't teach elements in a key frame list containing locators, the locator including an inherent ID, and image locator to locate the image, a representative segment locator, or a key image locator being a structure for designating an image using, a key image locator, a key frame locator, a s-key frame locator. Ratakonda teaches a video summarization system similar to that of Hirai, but further teaches elements in a key frame list containing locators, the locator including an inherent ID, and image locator to locate the image, a representative segment locator, and a key image locator being a structure for designating an image using a, key image

locator, a key frame locator, a s-key frame locator. With regard to claim 8, Ratakonda teaches, in column 6, lines 45-67, a means for locating items in a key frame list. It would have been obvious to one of ordinary skill in the art, having the teachings of Hirai and Ratakonda before him at the time the invention was made to modify the method of generating representative still images of a video sequence of Hirai to include the representative image locating means of Ratakonda. One would have been motivated to make such a combination because locating these key frames and the video segment they represent can help in editing and/or viewing the video sequence.

32. With regard to claim 19, which teaches a key image locator being a structure for designating an image using: a key image locator, a key frame locator, and a s-key frame locator, Ratakonda teaches, in column 6, lines 45-67, a locator method for locating key images of all levels of the hierarchy, and all the frames which they represent. It would have been obvious to one of ordinary skill in the art, having the teachings of Hirai and Ratakonda before him at the time the invention was made to modify the method of generating still images of Hirai to include a locator method for locating key images of all levels of the hierarchy, and all the frames which they represent of Ratakonda. One would have been motivated to make such a combination because the inclusion of these location and identification elements will help the user in using the video software.

33. With regard to claim 40, which teaches the synthetic key frame including a selected key region from each of the plurality of sections, Hirai further teaches, in column 4, lines 45-64, a group of frames combined into a representative frame.

34. With regard to claim 41, which teaches each of the plurality of sections comprising a video frame, and the selected key region comprises a portion of the video frame, Hirai further teaches, in column 4, lines 45-64, a group of frames combined into a representative frame and in column 3, lines 1-4, the association between the pictures in the hierarchal structure and their associated moving
picture sequences.

Response to Arguments

35. The arguments filed on 2-01-05 have been fully considered but they are not persuasive. The reasons are set forth below.

36. With respect to the applicants argument, that Hirai does not teach or suggest the key region and synthetic key frame as recited in claim 1.

37. In response, the examiner respectfully submits that Hirai teaches, in column 15, lines 35-47, column 9, lines 5-15, and in column 10, lines 40-45, combining two M-icons, each representative of a region, to form a combined (synthetic) M-icon. Hirai teaches, in column 2, lines 43-61 and in column 4, lines 45-60, an M-icon representing a scene or cut (representative portion) of a video sequence (key region), and from this representative portion, a second, finer, representative image is created. These images are placed in a hierarchical structure, with the top broad image representing the entire story, and the bottom images representing a particular finer element of the entire story.

38. With respect to the applicants argument, that Hirai does not teach or suggest each selected key region corresponding to a portion of a frame smaller than a total size.

39. In response, the examiner respectfully submits that Hirai teaches, in column 4, lines 45-52, having a moving picture and dividing the moving picture up into scenes and cuts, where If an item is divided up into portions these portions must be smaller than the whole.

40. With respect to the applicants argument, that M-icons are not key regions from a video stream.

41. In response, the examiner respectfully submits that Hirai shows in column 2, lines 43-53, that an M-icon can represent a cut, a scene, or a plurality of scenes. Where the detecting means divides the video up into scenes and cuts by detecting change points (see column 4, lines 46-60).

42. With respect to the applicants argument, that Hirai does not suggest assigning a synthetic key frame to a key image locator, a hierarchical summary list for describing lower summary structures, and a structural information of the video stream.

43. In response, the examiner respectfully submits that Harai teaches, in column 10 line 56 through column 11, lines 9-15 and in column 12, lines 59-67, The icon containing information used to locate its location within the moving picture, and information about its layout value in the hierarchical structure, where this layout information is a number up from the bottom layer giving structural information.

44. With respect to the applicants argument, that Ratakonda does not teach or suggest a key region or a synthetic key frame.

45. In response, the examiner respectfully submits that Ratakonda teaches, in column 4, line 35-63, the partitioning of video data in to shots (sequences) boundaries

for key frame selection. Ratakonda further teaches, in column 9, lines 40-43, that key frames can be grouped to form representative key frames. This produces a new key frame that represents a plurality of other key-frames.

46. With respect to the applicants argument, that claim 19, distinguishes over the applied references.

47. In response, the examiner respectfully submits that Ratakonda teaches, in column 6, lines 45-67, a locator method for locating key images of all levels of the hierarchy, and all the frames which they represent.

Conclusion

48. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis G. Bonshock whose telephone number is (571) 272-4047. The examiner can normally be reached on Monday - Friday, 6:30 a.m. - 4:00 p.m.

49. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cabeca can be reached on (571) 272-4048. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

50. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

3-11-05
dgb

JOHN CABECA
SUPERVISORY PATENT EXAMIN
TECHNOLOGY CENTER 210